INTERNATIONAL RECTIFIER IOR

1N1183, 1N3765, 1N1183A, 1N2128A SERIES

35, 40 and 60 Amp Power Silicon Rectifier Diodes

Major Ratings and Characteristics

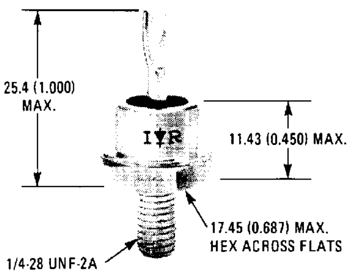
		1N1183	1N3765	1N1183A	1N2128A	Units
$I_{F(AV)}$		35*	35*	40*	60*	A
@ Max. T_C		140*	140*	150*	140*	°C
I_{FSM}	@ 50 Hz	480	380	765	860	A
	@ 60 Hz	500*	400*	800*	900*	
I^2t	@ 50 Hz	1140	730	2900	3700	A^2s
	@ 60 Hz	1040	670	2650	3400	
$I^2\sqrt{t}$		16 100	10 300	41 000	52 500	$A^2\sqrt{s}$
V_{RRM} Range		50* to 800*	700* to 1000*	50* to 600*	50* to 600*	V

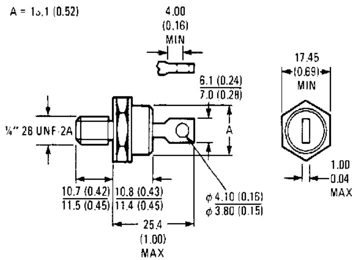
*JEDEC registered values.

Description and Features

- Low leakage current series
- Good surge current capability up to 1000 amps
- Can be supplied to meet stringent military, aerospace and other high-reliability requirements.

CASE STYLE AND DIMENSIONS





Conforms to JEDEC Outline DO-203AB (DO-5)
Dimensions in Millimeters and (Inches)

VOLTAGE RATINGS

Part Number①			V_{RRM} – Max. Repetitive Peak Reverse Voltage (V)	V_R – Max. Direct Reverse Voltage (V)
			T_C = –65°C to 200°C②	T_C = –65°C to 200°C②
1N1183	1N1183A	1N2128A	50*	50*
1N1184	1N1184A	1N2129A	100*	100*
1N1185	1N1185A	1N2130A	150*	150*
1N1186	1N1186A	1N2131A	200*	200*
1N1187	1N1187A	1N2133A	300*	300*
1N1188	1N1188A	1N2135A	400*	400*
1N1189	1N1189A	1N2137A	500*	500*
1N1190	1N1190A	1N2138A	600*	600*
1N3765			700*	700*
1N3766			800*	800*
1N3767			900*	900*
1N3768			1000*	1000*

ELECTRICAL SPECIFICATIONS

		1N1183	1N3765	1N1183A	1N2128A	Units	Conditions	
$I_{F(AV)}$	Max. average forward current @ Max. T_C	35*	35*	40*	60*	A	1-phase operation, 180° conduction	
		140*	140*	150*	140*	°C		
I_{FSM}	Max. peak one-cycle non-repetitive surge current	480	380	765	860	A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse	Following any rated load condition and with rated V_{RRM} applied.
		500*	400*	800*	900*	A	Half cycle 60 Hz sine wave or 5 ms rectangular pulse	
		570	455	910	1000	A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse	Following any rated load condition and with ½ V_{RRM} applied following surge = 0
		595	475	950	1050	A	Half cycle 60 Hz sine wave or 5 ms rectangular pulse	
I^2t	Max. I^2t for fusing	1140	730	2900	3700	A^2s	t = 10ms	With rated V_{RRM} applied following surge, initial T_J = T_J max.
		1040	670	2650	3400	A^2s	t = 8.3ms	
	Max. I^2t for individual device fusing	1610	1030	4150	5250	A^2s	t = 10ms	With V_{RRM} = 0 following surge, initial T_J = T_J Max.
		1470	940	3750	4750	A^2s	t = 8.3ms	
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ for individual device fusing③	16 100	10 300	41 500	52 500	$A^2\sqrt{s}$	t = 0.1 to 10 ms, V_{RRM} = 0 following surge.	
V_{FM}	Max. peak forward voltage	1.7*	1.8*	1.3*	1.3*	V	T_J = 25°C	
	@ I_{FM}	110	110	126	188	A		
$I_{R(AV)}$	Max. average reverse current	–	5.0*	–	–	mA	Max rated $I_{F(AV)}$ and T_C, V_{RRM} = 700V	
		–	4.0*	–	–	mA	800V	
		–	3.0*	–	–	mA	900V	
		–	2.0*	–	–	mA	1000V	
		10*	–	2.5*	10*	mA	Max. rated $I_{F(AV)}$, V_{RRM} and T_C.	

①Basic part number indicates cathode-to-case. For anode-to-case, add "R" to part number, i.e., 1N1188R, 1N3766R, 1N1186RA, 1N2135RA

②For 1N1183 series and 1N3765 series T_C = –65 to 190°C.

③I^2t for $t_x = I^2\sqrt{t} \cdot \sqrt{t_x}$.

* JEDEC registered values.

THERMAL-MECHANICAL SPECIFICATIONS

			1N1183	1N3765	1N1183A	1N2128A	Units	Conditions
T_C	Max. operating case temperature range		−65 to 190*		−65 to 200		°C	
T_{stg}	Max. storage temperature range		−65 to 175*		−65 to 200		°C	
R_{thJC}	Max. internal thermal resistance, junction-to-case		1.00*		1.1*	0.65*	deg. C/W	DC operation
R_{thCS}	Thermal resistance, case-to-sink		0.25				deg. C/W	Mounting surface flat, smooth, and greased.
T	Mounting torque	Min.	2.3 (20)				Nm	Non—lubricated threads
		Max.	3.4 (30)				(lbf.in)	
wt	Approximate weight		17 (0.6)				g (oz)	
	Case style		DO-203AB (DO-5)					JEDEC

*JEDEC registered values.

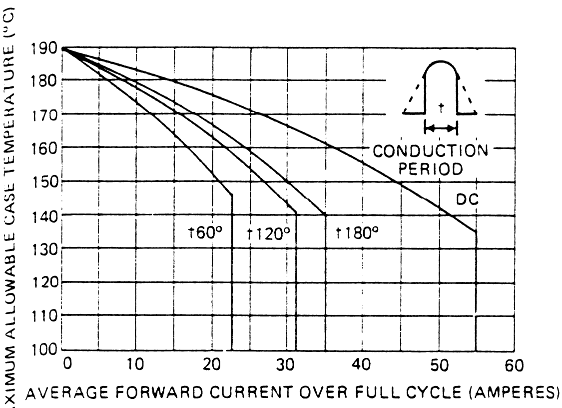


Fig. 1 — Maximum Allowable Case Temperature Vs. Average Forward Current, 1N1183 and 1N3765 Series

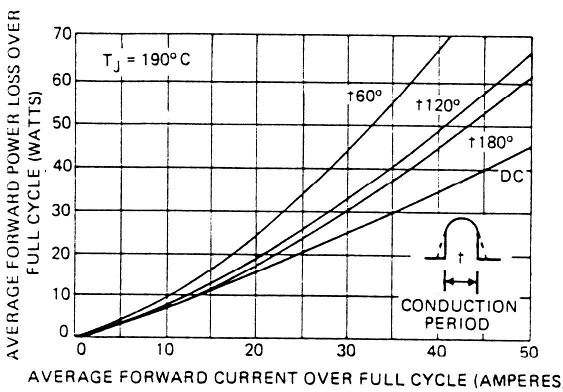


Fig. 2 — Typical Low Level Forward Power Loss Loss Vs. Average Forward Current (Sinusoidal Current Waveform), 1N1183 and 1N3765 Series

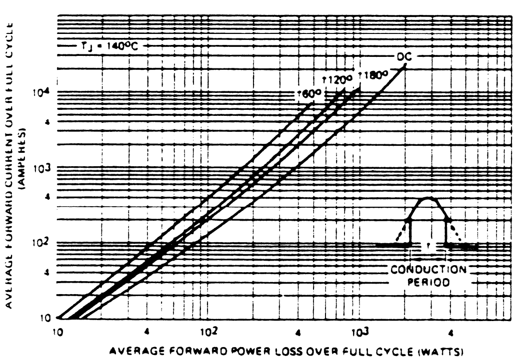


Fig. 3 — Typical High Level Forward Power Loss Vs. Average Forward Current (Sinusoidal Current Waveform), 1N1183 and 1N3765 Series

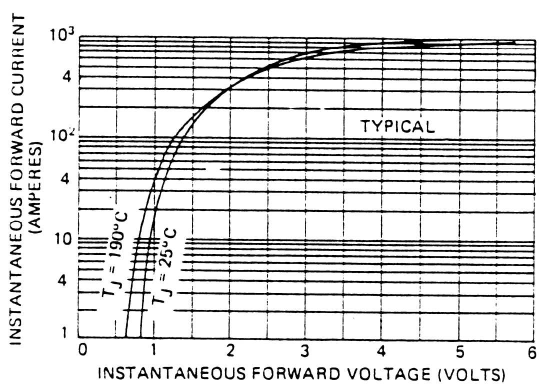


Fig. 4 — Typical Forward Voltage Vs. Forward Current, 1N1183 and 1N3765 Series

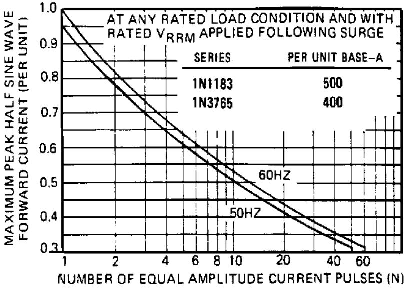


Fig. 5 – Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N1183 and 1N3765 Series

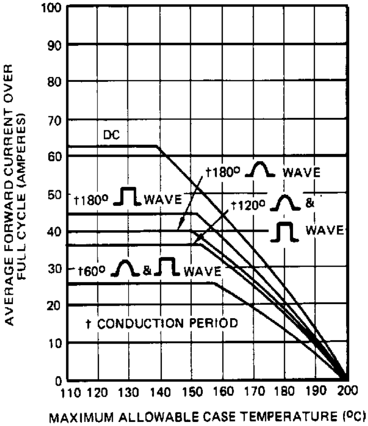


Fig. 6 – Average Forward Current Vs. Maximum Allowable Case Temperature, 1N1183A Series

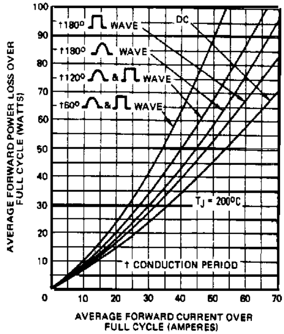


Fig. 7 – Maximum Low Level Forward Power Loss Vs. Average Forward Current, 1N1183A Series

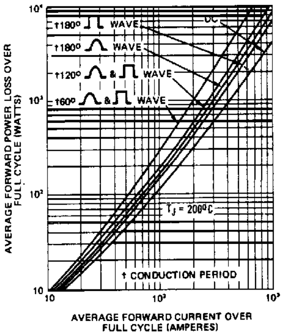


Fig. 8 – Maximum High Level Forward Power Loss Vs. Average Forward Current, 1N1183A Series.

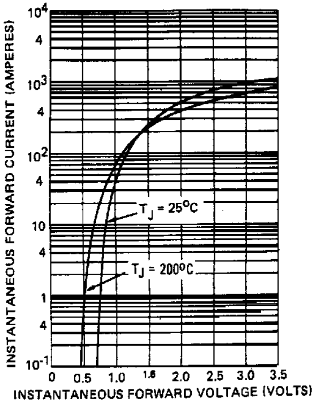


Fig. 9 – Maximum Forward Voltage Vs. Forward Current, 1N1183A Series

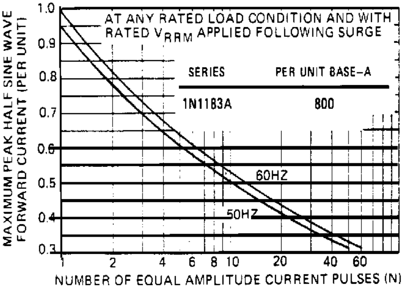


Fig. 10 – Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N1183A Series

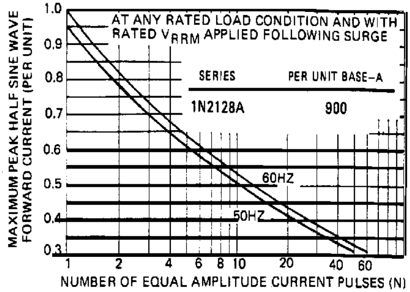


Fig. 11 – Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N2128A Series

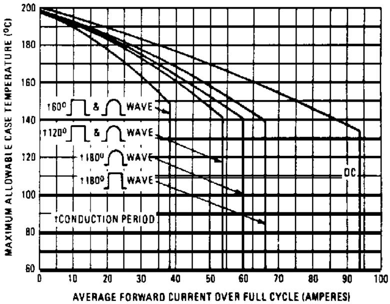


Fig. 12 – Maximum Allowable Case Temperature Vs. Average Forward Current, 1N2128A Series

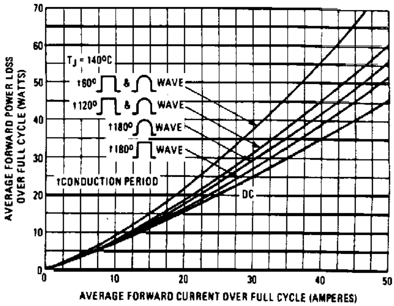


Fig. 13 – Maximum Low Level Forward Power Loss Vs. Average Forward Current, 1N2128A Series

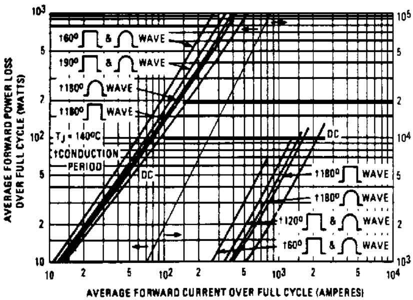


Fig. 14 – Maximum High Level Forward Power Loss Vs. Average Forward Current, 1N2128A Series

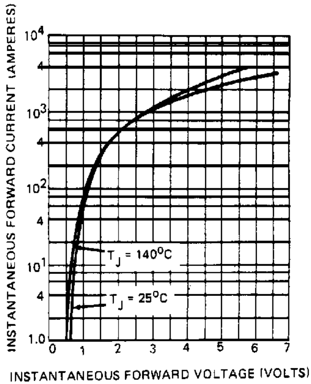


Fig. 15 – Maximum Forward Voltage Vs. Forward Current, 1N2128A Series